Homework 6 Search engine indexing and PageRank

1. Chris owns a small online bicycle store selling bike parts and accessories. Customers often find the store via a web search using a search engine.

   a. Explain the purpose of web crawler software used by search engines. [2]

   b. In the construction of the website, Chris included metatags in each web page.
      (i) Give **two** examples of metatags that Chris may have applied to the home page of his website. [1]

      (ii) Explain how metatags are used in the search process. [2]

2. Describe what is meant by search engine indexing, and how this affects the user of a search engine [4]

3. The PageRank algorithm is used by Google to decide how relevant a web page is. The original algorithm is:

$$PR(A) = (1-d) + d\,(PR(T_i)/C(T_i) + ... + PR(T_n)/C(T_n))$$

   - **PR(A)** is the PageRank of page A
   - **PR(Ti)** is the PageRank of pages Ti which link to page A
   - **d** is the damping factor
   - **C(Ti)** is the number of outbound links on page Ti

   a. The algorithm uses a damping factor d. Explain the purpose of d. [2]

   b. Suggest three factors that affect the rank of a web page. [3]

Total 14 Marks